



Apache OFBiz General Introduction.

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1 Introduction to this general OFBiz introduction

When visiting customers we found that an introduction document of the Apache OFbiz system was missing. The intended audience of this document is therefore business managers and heads of IT departments who want to get a quick overview and top level capabilities of the Apache OFBiz ERP/CRM system, framework and data model. The next chapter provides you a short overview and later a more detailed description. If you are looking for a functionality not found in this document let us know at support@antwebsystems.com, perhaps it was added in the mean time this document was created or we forgot to mention it here.

More technical detail is provided in the OFBiz development introduction document also available at the web site of Antwebsystems.

2 Overview.

The Apache OFBiz system consist out of several parts which in combination is an almost unbeatable set for any type of business application:

- 1) The basis of the whole system is the OFBiz framework which allows for real application programming. Technical knowledge of operating systems, databases, SQL and html/css/javascript is not required. A entity engine for the creation of entities and their relationships supporting many databases, a service engine for the creation of business logic for the SOA (Service Oriented Architecture) and screens and forms for the user interface is all you need for a real business application.
- 2) The business database layout based on more than 20 years experience derived from the “Data model Resource Books”
- 3) Database seed content: You need currencies, countries, country capitals, lengths weights, it is all provided and much more. This data can be loaded automatically when the system starts.
- 4) Database demo data: You want to try or test your application? The framework contains demo customers, demo products, demo invoices etc.
- 5) The application: Then on top of the above parts a fully developed ERP & CRM system containing components for E-commerce, CRM, Catalog and Warehouse, Ordering, Manufacturing, Accounting, HRM, Project management, task management and Marketing.
- 6) Built-in Documentation: Although not completed yet, the system contains help screens which provide context sensitive help and can be shown as a pdf document. Further documentation is available on the OFBiz wiki at the OFbiz website.
- 7) The application server included in OFBiz is the Tomcat application server and the Apache web server for scaling to any size : just add hardware.
- 8) The license for the whole system is Apache 2.0 which means you can extend and re-sell without any limitation or having to make your extensions open source too.

The system is backed by a very alive and kicking community under the Apache umbrella: no dependency on a single commercial company. More information on the system website at



<http://ofbiz.apache.org> and when you need commercial support try out AntWebsystems Co.Ltd at <http://www.antwebsystems.com> : Quality services for competitive rates. An alternative is to join the OFBiz community by subscribing to the OFBiz mailing lists, more info at the OFBiz website.

3 Why do companies select Apache OFBiz?

A number of reasons were mentioned by the current customers for the selection:

- 1) Flexible, easy and cost effective to adapt.
- 2) Sound entity model and framework: great development environment.
- 3) Good basis for an enterprise service bus.
- 4) Cost savings: no license costs
- 5) Open system model making use of open standards.
- 6) Not dependent on a single commercial company: owned by the Apache foundation.
- 7) Large open source community.
- 8) Already in use by large companies.
- 9) Based on Apache/Tomcat for good scalability.

4 The Application.

Developed on top of the Apache OFBiz framework the application which will be seen by the end users. Lets start with that to provide some more detail. First with CRM (Customer Relationship Management) because the people are the center of all the components, later on to product, order, accounting etc.

4.1 CRM and Customer service

OFBiz is often undervalued concerning Customer relationship management. This was mainly caused in the past by the functional, but rather old fashioned user interface. Behind the screens however there is a well thought out data model and business logic in the form of services in a SOA environment.

The whole system is centered around the “party” which can be a person, a company, a vendor etc. The main CRM functions are located in the party component. A specialized component is also available which supports the business to business CRM. This SFA (Sales force automation) component is using the same data, but adds functionality to support the business to business sales function like entering of leads, promote these to contacts and accounts etc.

Because most information in OFBiz relates to a party, it is relatively easy to show any type of information related to a particular party. Further, parties have roles they can act as, parties can have more than one role. Examples are customer, supplier, employee etc. Parties can receive and send email which are called communication events. Other communication events types are telephone calls, letters, meetings etc. which are entered manually. Any contact with the customer is a communication event.

When a communication event comes in, it needs to be processed, either replied when it is simple, or when there is a certain amount of work to be performed, converted into a customer request of a certain



type. (support, complaint etc) This customer request depending on the type will appear on the open requests of a certain department. The department coordinator will assign the customer request to a new task and will assign this task to the employee who will perform the requested task. If he has completed the task, he will enter his time sheet related to this task and will set it to complete.

When the task is set to complete, the related customer request is also set to complete and the customer is notified by email.

New parties can be entered in the role as lead, connected to an opportunity where progress is stored and they can progress to contact if they are placing an order.

There are also contact lists which can be generated from existing parties or can be imported. These contact list can be used to contact the parties on that list either by telephone or email. Email responses (clicking on a link inside the email) can be logged back into the system.

Parties can have one or more user-logins with different access rules. All requests to the system are logged in the “visits” and “hits” entities.

4.2 Company portal.

How to present your company to your customers? Normally a portal function is used for that to present in a unified way the way how your customers can be served best and how they can browse your services and products. This portal function is also used to present only the screens which are used by a employee function.

4.3 Product Catalog and Warehouse

Products are defined in the catalog component where catalogs relate to categories and category to any category relationship is possible. Products can relate to any number of categories. Product can be subscriptions of which the start and end date are recorded and monitored for expiry.

The data structure contains out of many shops which can contain many catalogs and many categories which can be organized in a tree or matrix. Products can be connected to one or more categories for organizational, e-commerce and/or tax purposes.

4.4 Order manager

Orders can be entered through the e-commerce component or the back-end order entry component.

Orders have order items which relate to the products. Orders can generate shipments and when they are delivered an invoice is created. Also returns can be processed.

The order manager can also handle purchase orders which can be automatically generated from low warehouse quantities. The selection of the supplier can be automatic when sufficient data is available in the system. The purchase order will contain the product id's know to this supplier with the last ordered prices.

4.5 Accounting

The Accounting system is organized according to the generally accepted principles such as



double-entry accounting, a General Ledger with hierarchical accounts, journals and posting of transactions and corresponding entries.

The structure is primary based on the OMG GL standard and the work that was done on an AR/AP extension of the OMG GL standard. This correlates well with other standards such as ebXML and OAGIS.

The Accounting entities are structured such that accounts for multiple organizations can be managed. The multiple organizations could be multiple companies, or departments or other organizations within a company.

Each Organization can have various GL Accounts associated with it so that it can operate with its own subset of the Master Chart of Accounts. Each Organization can also have its own set of Journals for flexibility, even though the use of Journals should be as minimal as possible in favor of allowing the system to automatically create and post transactions based on business events triggered by standard procedures and documents such as purchase and sales orders, invoices, inventory transfers, payments, receipts, and so forth.

4.6 E-commerce

This is where it all started when most of the framework was finished: the e-commerce component. The current features: multi tenant, multi-shop, multi language and currency, catalogs, categories, multiple product prices, product features, product variants, price rules, drop shipping, search with thesaurus, product configurations (configurable PC), promotions, subscriptions, rental, web analytics, content management, reviews, forums and more..... Examples of e-commerce shops are :

www.cache.com , www.rugsusa.com , www.virtualvillage.com yes also

<http://www.antwebsites.com> . more examples at :

<https://cwiki.apache.org/confluence/display/OFBIZ/Apache+OFBiz+User+List>

4.7 Project management, time registration and project billing.

This component provides you with a project manager of which the main purpose is the administration of projects, phases, tasks and resources and tracking of estimated time against actual time which is entered via time sheets on project tasks only. This time registration is then used to generate invoices which can be send to the 'client' party of the project.

4.8 Marketing

The overall purpose of the Marketing application is the support to select leads from parties obtained from a certain source or marketing segment to convert to opportunities by contacting these parties via a contact-list related to a marketing campaign.



4.9 Manufacturing

Ofbiz supports the manufacturing of products which can be ordered and configured in the e-commerce application and then assembled in the manufacturing component taking the inventory levels into account. The final product will then be put back in inventory to be able to send to the customer. Make to order and just in time manufacturing are supported.

4.10 HRM: human resource management

Also a HRM component is provided supporting the administration of employees, organization, employee positions, leave, training schedules, recruitment, performance management.

5 Data model

The data model consists out of more then 800 entities and more than 200 views and is centered around the party entity representing people or legal entities like companies or departments. It is based on the Data Model resource books (<http://silverston.wiley.com/>) containing out of more then 800 entities and more than 200 views providing a very complete data model.

A graphical representation can be found here: <http://cwiki.apache.org/confluence/x/8ILK> or inside the system in the webtools → entity reference function at [https://demo-](https://demo-trunk.ofbiz.apache.org/webtools/control/entityref?)

[trunk.ofbiz.apache.org/webtools/control/entityref?](https://demo-trunk.ofbiz.apache.org/webtools/control/entityref?)

[USERNAME=flexadmin&PASSWORD=ofbiz&JavaScriptEnabled=Y](https://demo-trunk.ofbiz.apache.org/webtools/control/entityref?)

Here you can even browse the content of the entities and update them.

6 Framework

The framework enables the rapid development of business applications. Below follows the main parts in the framework. It is using the Apache Tomcat application server for high scalability.

6.1 Entity Engine

The purpose of the entity engine is to make the application independent of a specific database. Many databases are supported including Postgres, Mysql, Oracle, DB2, SQLServer and others. The database table definition is also defined in the framework which will automatically be loaded in the database when the database is empty. Upon startup the the current database is compared with the internal definition and updated when possible and required. The data model definition can be browsed and the content of the entities can be viewed and updated. Also export and import functions are provided.

6.2 Service Engine

The service engine provides the SOA (Service Oriented Architecture) functions including a background execution system. Services can be exported as web services. This part of the system can be used as the basis of a enterprise wide service bus. It is relatively easy to connect to other Apache products like Apache Servicemix.



6.3 Screen and form widgets

In order to develop quickly and to reuse screen parts service definitions and entity definitions as much as possible a form generator is included which generates html from xml form definitions. These forms can be combined with straight html using decorators in a screen which can be displayed using a simple request.

6.4 Mini language

The programming languages of the system are Java and Groovy. The framework adds another language called mini-language or also called simple methods. This xml file based language makes the programming of business functions, where the reading, writing and processing of records is often used, very easy. For specific uses groovy and Java routines can still be called.

6.5 Security.

The framework contains security on the screen and service level which connects groups of users with groups of permissions.

6.6 Various other functions of the framework

Then there are general other functions in the framework which are available to the application as a whole.

1. For statistical purposes and ServerHit, ServerHitBin and Visitor tables are used where any action within the system is logged.
2. For audit purposes a EntityAuditLog table is available where single fields in entities can be followed (see the enable-audit-log flag on an entity field level)

7 Interface to other systems.

Although OFBiz can cope with most parts of the company functions, normally, in a larger company OFBiz gets introduced at a later stage and has to interface to the systems already introduced in the company.

Ofbiz can interface at several different levels to other systems, namely at database level, (web) services level and user interface level. Further the system supports the single sign on capability with the standard interface to CAS (<http://www.jasig.org/cas>). Other systems can be integrated too but could need customization.